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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/531,374
Filing Date: April 15, 2005
Appellant(s): KURAMORI ET AL.

James K. Folker
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed November 21, 2007 appealing from the Final Rejection mailed May 15, 2007 and the Advisory Action mailed September 5, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

This appeal involves claim 1.

Claims 2-4 been canceled.

(4) Status of Amendments After Final

The appellants' statement of the status of amendments after final rejection contained in the brief is correct. However, it should be noted that the after final amendment, filed on August 13, 2007, merely canceled redundant claim 4 to overcome the claim objection. No other changes were made by this amendment.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellants' statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6463974	Hellweg et al.	10-2002
4823854	Payne et al.	4-1989
7100654	Boiocchi et al.	9-2006

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hellweg et al. in view of Payne et al. and Boiocchi et al.

The full rejection can be found on pages 2-4 of the Final Rejection dated May 15, 2007. A response to Appellants' arguments can be found on pages 4-6. Further, new arguments were brought up in the after final amendment filed on August 13, 2007. A response to these arguments can be found on page 2 of the Advisory Action dated September 5, 2007.

(10) Response to Argument

In response to Appellants' argument on pages 11 and 12 of the Appeal Brief that "[t]he structure of the run flat insert of Payne et al. is so different from the structure of the run flat insert of Hellweg et al. that any relationship of unmounted and mounted widths from the Payne et al device is irrelevant to the device of Hellweg et al." and thus "it is improper to import the widths (mounted and un-mounted) from Payne et al. into the device of Hellweg et al.", note the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, Payne et al. is only being used as a teaching reference to modify Hellweg et al. (See page 2 of Advisory Action)

Specifically, Hellweg et al. discloses a tire wheel assembly in which a pneumatic tire **34** is fitted to a rim **8** of a wheel **1** and a run-flat support **2** is inserted in a cavity section (unlabeled) of the pneumatic tire **34**, the run-flat support **2** including an annular shell **3** and a pair of left and right elastic rings **4, 5**, the annular shell **3** having a support surface projecting to the outer circumferential side as shown in Fig. 1 and leg parts **6, 7** extending along both sides of the support surface, and the elastic rings **4, 5** supporting the leg parts **6, 7** of the annular shell **3** on the rim **8**, wherein the run-flat support is compressed when mounted on the rim as described in column 5, lines 19-26.

Hellweg et al. does not expressly disclose that a relation (W2-W1)/W1=0.02-0.100 is satisfied assuming that W1 is an interval between abutting points where the pair of left and right elastic rings abut on the inner surface of the tire when the pneumatic tire and the run-flat support are mounted on the rim and W2 is an interval between the abutting points when the run-flat support is not mounted.

Payne et al., however, teaches a tire wheel assembly wherein (W2-W1)/W1=0.0172 for the run-flat support as shown in Fig. 11 and described in detail in column 13, lines 38-55 (W1=6.96" and W2=7.08", thus (W2-W1)/W1=.0172). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have used a run-flat support which upon mounting compresses a desired amount, such as taught by Payne et al., for the tire wheel assembly of Hellweg et al., based upon a number of factors, such as the intended use of the run-flat, dimensions of the wheel and tire, type of tire used, and intended use and loading of the vehicle, to prevent the tire bead from being unseated and the run-flat support from buckling. (See paragraph 3 of Final Office Action)

Moreover, in response to Appellants' argument that "there is no discussion in the references that the same materials were used, or that the materials had the same elasticity, or that the materials have the same thickness", note that it is well within the level of ordinary skill in the art to consider these factors and other factors, such as the intended use of the run-flat, dimensions of the wheel and tire, type of tire used, intended use and loading of the vehicle when designing a run-flat to determine the proper amount of compression upon mounting that will be required to retain the tire beads on the rim.

In response to Appellants' argument on pages 12, 13 and 14 of the Appeal Brief that "[t]he specific widths of Payne et al. asserted by the Examiner are not the same as the claimed widths W1 and W2, but are instead measurements of the widths of a different interval", note again that Payne et al. is being used as a teaching reference and is not being bodily incorporated into the structure of Hellweg et al. (See page 2 of Advisory Action)

Specifically, Hellweg et al. discloses a pair of elastic rings **4, 5** (described as ring-shaped support elements in the specification) that compress axially upon mounting as shown in Fig. 2 (the intermediate step during mounting), Fig. 1 (the mounted run-flat assembly) and described in column 5, lines 19-26. The pair of elastic rings **4, 5** abut on the inner surface of the tire when the pneumatic tire and the run-flat are mounted on the rim as is clearly shown in Fig. 1 of Hellweg et al. Although Hellweg et al. is silent as to how much the elastic rings compress upon mounting, column 4, lines 52-56 of Hellweg et al. discloses that the "ring-shaped support elements as bonded bodies allows the provision of a flexibility and elasticity of the support elements that ***can be adjusted exactly*** to the *necessary characteristics* in mounting and under emergency running conditions" (emphasis added). Therefore, one of ordinary skill in the art could readily determine suitable compression of the elastic rings as recognized by Hellweg et al.

Payne et al. provides a teaching of a run-flat support which is designed to compress a desired amount upon mounting. More specifically, Payne et al. teaches a run-flat assembly wherein the a width of 6.96 is the interval between abutting points where the pair of knees **68, 70** of the annular band **60** of the run-flat insert system abut on the inner surface of the tire against the tire beads **80, 82** when the pneumatic tire and the run-flat are mounted on the rim, and the

width of 7.08 is the interval between the abutting points when the run-flat insert system is not mounted as described in column 13, lines 38-55 of Payne et al and shown in Fig. 11.

As noted above, it is well within the ability of one of ordinary skill in the art to determine the necessary compression of the elastic rings based on a number of factors, such as dimensions of the wheel and tire, type of tire used, intended use of run-flat, intended use and loading of vehicle, and materials used for the run-flat assembly.

In response to Appellants' argument on pages 15, 16 and 17 of the Appeal Brief that "[t]he asserted relationship of (W2-W1)/W1 = 0.0172 fails to read on the claimed ranged of 0.02 to 0.100, the Examiner agrees. However, Appellants have not disclosed that having (W2-W1)/W1=0.02-0.100 as opposed to (W2-W1)/W1=0.015-0.100 solves any stated problem or is for any particular purpose. It appears that a tire wheel assembly wherein (W2-W1)/W1=0.0172 would perform equally well with the claimed (W2-W1)/W1=0.02-0.100 as demonstrated by Table 1 on page 9 of Appellants' specification. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the tire wheel assembly of Hellweg et al., as taught by Payne et al., such that the run flat support upon mounting compresses within the range (W2-W1)/W1=0.02-0.100 because such a modification would have been considered a mere design consideration which fails to patentably distinguish over the prior art. (See paragraph 3 of Final Office Action)

Further, in response to Appellants' argument "the relationship (W2-W1)/W1 is not disclosed as being a known result-effective variable" and "[n]one of the cited references even mentions this relationship", note that a structural relationship, such as (W2-W1)/W1, does not

have to be expressly disclosed in a disclosure to exist. All run-flat systems would have a width component when un-mounted and a width component when mounted. As such, the run-flat system of Hellweg et al. would also, inherently, have a width component when un-mounted and a width component when mounted. (See page 2 of Advisory Action) Nonetheless, Hellweg et al. implicitly discloses the relationship (W2-W1)/W1. Column 4, lines 52-56 of Hellweg et al. discloses that the "ring-shaped support elements as bonded bodies allows the provision of a flexibility and elasticiy of the support elements that ***can be adjusted exactly*** to the *necessary characterisitics* in mounting and under emergency running conditions" (emphasis added) and column 5, lines 19-23 of Hellweg et al. discloses that "[i]n mounting, such an embodiment creates the possibility of introducing the ring body into the tire cavity after a tire bead is already fixed on a rim shoulder by ***an axial deformation of the bonded bodies***..." (emphasis added). In other words, Hellweg et al. discloses the ring-shaped support elements (pair of elastic rings **4**, **5**) compress axially upon mounting and the elasticty of these ring-shaped support elements can be adjusted (i.e., result-effective variable) to achieve desired mounting and under emergency running conditions.

Furthermore, MPEP §2144.05 states "a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of "having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium" as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium.). In the instant case,

although the compression ratio (W2-W1)/W1 taught by Payne et al. fails to overlap the claimed compression range as argued by Appellant, in light of this decision, a difference of 0.0028 (0.0200 – 0.0172) would be negligible and one of ordinary skill in the art would have expected a run-flat with the relationship (W2-W1)/W1 = 0.0172 as taught by Payne et al. to have the same properties as a run flat with the claimed relationship (W2-W1)/W1=0.02-0.100. It should be noted that Appellant amended the claimed relationship (W2-W1)/W1=0.02-0.100 from the original claimed relationship (W2-W1)/W1=0.015-0.100 in an attempt to overcome the compression ratio taught by Payne et al. (See page 5 of Amendment filed on April 2, 2007) Further, Appellant has not stated any criticality to having the relationship (W2-W1)/W1=0.02-0.100 as opposed to (W2-W1)/W1=0.015-0.100.

In response to Appellants' argument on pages 17 and 18 of the Appeal Brief that "[t]he proposed combination also lacks the claimed annular shell that is composed of a metal with a yield strength of 400 MPa or more" because "the annular body 5 of Boiocchi et al. is not equivalent to the annular shell 3 of Hellweg et al., nor is it equivalent to the annular shell of the present invention", note that Boiocchi et al. is being used as a teaching reference and is not being bodily incorporated into the structure of Hellweg et al. (See page 2 of Advisory Action)

Although column 8, lines 25-28 of Hellweg et al. discloses that the annular shell can be produced from "material that is inelastic and/or hard in comparison with the support elements, such as steel, aluminum…", Hellweg et al. fails to expressly disclose the annular shell is composed of metal with a yield strength of 400 MPa or more. Column 8, lines 28-30 of Hellweg et al., however, teaches that the emergency running body or annular shell **3** "can be adapted as

desired with respect to lateral guidance forces and stresses under emergency running conditions by *the selection of materials*" (emphasis added).

Boiocchi et al. teaches an annular shell composed of spring steel with a yield strength between 1200 MPa and 1300 MPa (column 7, lines 60-63). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have used an annular shell composed of metal with a yield strength of 400 MPa or more, such as taught by Boiocchi et al., for the tire wheel assembly of Hellweg et al., to provide rigid support for run-flat driving and help prevent plastic deformation of the annular shell when mounted on the rim. (See paragraph 3 of Final Office Action) As such, it would have been well within the ability of one of ordinary skill in the art to have selected a metal material for the annular shell with a yield strength of 400 MPa or more, if so desired, to provide adequate support for run-flat driving based upon the intended use of the run-flat and vehicle, dimensions of the wheel and tire and loading of the vehicle.

In response to Appellants' argument on pages 19 and 20 of the Appeal Brief that "the assembly problems solved by Hellweg et al. are not present in Payne et al. because Payne et al. is a 'take-apart multi-piece' wheel rim (i.e., a segment type wheel rim), while the present invention and Hellweg et al. relate to a one-piece body structured rim", it should be noted that Appellants do not claim the limitation of a one-piece body structured rim.

Further, the fact that Appellants have recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat.

App. & Inter. 1985). As such, it is irrelevant whether Payne et al. contains the concept of overcoming the difficulty of assembling an annular shell with a rim of a one-piece body structure as found in Hellweg et al. As mentioned above, Hellweg et al. discloses that the "ring-shaped support elements as bonded bodies allows the provision of a flexibility and elasticiy of the support elements that ***can be adjusted*** exactly to the *necessary characterisitics* in mounting and ***under emergency running conditions***" (emphasis added). Payne et al. provides a teaching of a run-flat support which is designed to compress a desired amount upon mounting to facilitate run-flat driving by preventing the tire bead from being unseated.

Appellants have not specifically argued the § 103 rejection with respect to the obviousness of selecting a material for the elastic rings with a JIS-A hardness of 50 to 65. Therefore, to select a material for the elastic rings with a JIS-A hardness of 50 to 65 is admitted to be old and obvious as it is well within the ability of one of ordinary skill in the art to select known values of hardness from a range of known materials to provide adequate support for run-flat driving and help prevent the annular shell from being plastically deformed when mounted on the rim. (See paragraph 3 of Final Office Action)

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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